

Understanding Pollution: The Dangers of Fracking

Recently, there has been a great deal of talk about the benefits and dangers of a process known as “fracking.” If, like me, you aren’t entirely sure what means then, no worries. I decided to find out. Fracking, or as it is officially known hydraulic fracturing, is a process where water and chemicals are pumped into the ground at extremely high pressures in order to break up deposits of shale so that the shale can be extracted as natural gas or oil.ⁱ Sounds innovative, but what are the costs associated with such an undertaking?



To begin with, fracturing requires a *ton* of water. All in all, there are 500,000 active gas wells in the United States, and each gas well requires roughly 8 million gallons of water per fracking attempt, and a well can be fracked about 18 times before it is finished. That equals a total of 72 *trillion* gallons of water used for the fracking industry.ⁱⁱ 72 trillion gallons of water that cannot then be used for drinking water, irrigation, or most other uses. Why? Because of the chemicals that are mixed in with the water in order to break up the shale. Chemicals like hydrochloric and boric acid, which are acids which means they aren’t the safest chemicals on the planet, and definitely not something I want in my water.ⁱⁱⁱ Just for those who don’t know, hydrochloric acid is used in the production of chlorides, fertilizers, and dyes, and is corrosive to the eyes, skin, and mucous membrane, esophagus, and stomachs of humans.^{iv} Altogether, it is estimated that six hundred different chemicals are used in the hydraulic fracturing process.^v Those chemicals, sadly,

do not stay where they are supposed to. Concentrations of Methane gas are 17 times higher in ground water near fracking wells, than the rest of the country, and there have been 1000 documented cases of water contamination near fracking sites.^{vi} The worst part is that the chemicals used in fracking are not all recovered. Recent reports have revealed that up to 80% of these chemicals are left underground after the completion of the fracking process.^{vii}

Another concern of fracking is the different health effects that can occur from exposure to all of the chemicals used. An article written in 2011 found that 75% of the chemicals used in fracking could have effects on human skin, eyes, and our other sensory organs, and that 50% of the chemicals used could affect our immune, cardiovascular, and nervous systems.^{viii} So, to sum up only 50% of the chemicals used in fracking can affect our immune system, which keeps us healthy, our cardiovascular system, which transports oxygen through our blood, and our nervous system which is our brain! While the Environmental Protection Agency is still continuing its review of the effects of fracking, that is not stopping those who live near fracking wells from reporting increased health problems with almost 40% of those living within a kilometer of a fracking well reporting upper respiratory problems.^{ix} Because fracking is only about ten years old, there has not been enough time to discover the long term effects of it on human health or the environment, and while the EPA is preparing a report, and has been for three years, fracking still continues. Some towns have even taken the situation into their own hands with the town of Denton Texas banning fracking in their town on November 04 2014.^x While there is no doubt that both the fracking industry, and possibly the state government, will seek to challenge the ban, still the people are worried enough about their health to take action.

As mentioned earlier, fracking has only been around for about ten years, but its effects on the environment are already starting to pile up. For one, there is the contamination of soil and ground water as the chemicals used in the fracking process are left in the ground, and are not biodegradable.^{xi} In fact, the town of Pavillion, Wyoming have just recently had the EPA confirm that their ground drinking water has been contaminated from the fracking process.^{xii} You then have to worry about what happens if there is a spill. In July of 2014 a million gallons of wastewater from a fracking plant was spilt in a river in North Dakota killing plant and animal life along the river, and is now traveling working its way to Lake Sakakawea, which is a main source of drinking water in the area.^{xiii} That is the damage being reported from just one, relatively small, spill of just wastewater. Imagine if the spill had contained the tar sands that shale is found in, and is much more difficult to clean up. Incidentally, fracking has also been linked to an increase in earthquakes and tremors in the Dallas-Fort Worth area.^{xiv}



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Fracking is an industry that proponents claim will usher in a golden age of energy independence in the United States. That may be true, if the industry can continue to access the shale at cost efficient levels. However, can we truly ignore the problems that are more and more being associated with fracking? I don't have the answer, and even if I did I'm not a policy maker in the US government with the power to make that determination. But I do know that *we*, the people who see the dangers and devastating effects of fracking on our health and wellbeing, as well as to our planet, have the right to make our voices heard. There is a growing group of people who are speaking out against fracking, proving that the people can cause change if they work together. As the evidence continues to mount as to the effects of fracking we must make sure that profit does not trump the environment, human health, and our very lives.

About the Author



Dominick Principe is a graduate of Rowan University with dual Bachelor Degrees in Elementary Education and Writing Arts. He is a prolific reader who devours any book put before him, and feels that life is one great long book without an end. He fills his hours constantly exploring new information, and seeking to educate himself in the ways of the world. He puts all of that knowledge and his passion for learning to good use teaching English as a second

language to students of all ages. When his nose isn't buried in a book, or in class teaching, then he can generally be found typing away at his computer working on some random piece of writing that he was inspired to do.

ⁱ "What Is Fracking." *What Is Fracking*. Web. 20 Nov. 2014. <<http://www.what-is-fracking.com/>>.

ⁱⁱ "What Goes In & Out of Hydraulic Fracking." *Dangers of Fracking*. Web. 20 Nov. 2014. <<http://www.dangersoffracking.com/>>.

ⁱⁱⁱ "What Chemicals Are Used." *FracFocus Chemical Disclosure Registry*. Web. 20 Nov. 2014. <<https://fracfocus.org/chemical-use/what-chemicals-are-used>>.

^{iv} "Hydrochloric Acid (Hydrogen Chloride)." *EPA*. Environmental Protection Agency. Web. 20 Nov. 2014. <<http://www.epa.gov/ttnatw01/hlthef/hydrochl.html>>.

^v "What Goes In & Out of Hydraulic Fracking." *Dangers of Fracking*. Web. 20 Nov. 2014. <<http://www.dangersoffracking.com/>>.

^{vi} "What Goes In & Out of Hydraulic Fracking." *Dangers of Fracking*. Web. 20 Nov. 2014. <<http://www.dangersoffracking.com/>>.

^{vii} "Fracking Chemicals Cited in Congressional Report Stay Underground." *Top Stories RSS*. Web. 20 Nov. 2014. <<http://www.propublica.org/article/fracking-chemicals-cited-in-congressional-report-stay-underground>>.

^{viii} "Geology and Human Health Topical Resources." *Potential Health and Environmental Effects of Hydrofracking in the Williston Basin, Montana*. Web. 20 Nov. 2014. <http://serc.carleton.edu/NAGTWorkshops/health/case_studies/hydrofracking_w.html>.

^{ix} Koch, Wendy. "People near 'fracking' Wells Report Health Woes." *USA Today*. Gannett, 10 Sept. 2014. Web. 20 Nov. 2014. <<http://www.usatoday.com/story/money/business/2014/09/10/people-near-fracking-wells-health-symptoms/15337797/>>.

^x "Battle Lines Drawn After Texas Town Bans Fracking." *NPR*. NPR. Web. 20 Nov. 2014. <<http://www.npr.org/2014/11/06/362086784/battle-lines-drawn-after-texas-town-bans-fracking>>.

^{xi} "What Goes In & Out of Hydraulic Fracking." *Dangers of Fracking*. Web. 20 Nov. 2014. <<http://www.dangersoffracking.com/>>.

^{xii} "Geology and Human Health Topical Resources." *Potential Health and Environmental Effects of Hydrofracking in the Williston Basin, Montana*. Web. 20 Nov. 2014. <http://serc.carleton.edu/NAGTWorkshops/health/case_studies/hydrofracking_w.html>.

^{xiii} "'Saltwater' From Fracking Spill Is Not What's Found in the Ocean." *Bloomberg.com*. Bloomberg. Web. 20 Nov. 2014. <<http://www.bloomberg.com/news/2014-07-16/-saltwater-from-fracking-spill-is-not-what-s-found-in-the-ocean.html>>.

^{xiv} "How Oil and Gas Disposal Wells Can Cause Earthquakes." *Texas RSS*. National Public Radio. Web. 20 Nov. 2014. <<http://stateimpact.npr.org/texas/tag/earthquake/>>.